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IS THE GOOGLE PLATFORM A TWO-SIDED MARKET?

Giacomo Luchetta*

Abstract

Probably not. Or, at least, it is a *sui generis* two-sided market. Unlike other platforms, such as operating systems, credit cards, or night clubs, where a single transaction is performed via the platform, two different transactions take place on Google. Users look for search results, while advertisers look for users' eyeballs. Whilst operating systems, credit cards, and night clubs would be meaningless if either of the two sides were missing, search engines (like TV or newspapers) can exist under different market configurations. Indeed, in search engines network externalities run only from the number of users to advertisers, and not the other way around. This thesis is supported by the analysis of the existing literature on two-sided markets and the applications carried out so far to the economics of search engines.

According to this analysis, a new construction of the relevant market where Google operates is proposed. Google operates as a retailer of eyeballs, or users' attention. In the upstream market, on one side, it buys well-profiled eyeballs from large retailers, i.e. major websites, at a positive price (Traffic Acquisition Costs); on the other side, it buys eyeballs from single consumers in exchange of search services (in-kind payment). Then, it sells well-profiled eyeballs to advertisers in the downstream market. Based on this market construction, the allegations against Google are analysed as alleged violations of competition law along this vertical chain.

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1 Introduction

Google entered our daily lives to the extent that we wonder how the world was previously. Its usefulness goes from friends' nights, in which anyone can take his smartphone out of his pocket and "google" where to go, what to do tonight, who the actor in that movie was whose name we cannot really remember; to this very research work, in which Google was crucial for collecting data and other scholars' contributions.

Google is the modern version of the catalogue of the Library of Babel. Unlike in Borges's prophecy, the Internet, containing an amount of information which is nearly infinite for any human scale, has its own finished catalogue: Google. It is the gateway for the whole of Internet, therefore holding the key to one of the most important invention of the twentieth century. Given today state of the art, if Google goes down, a large part of the Internet would become *de facto* inaccessible. At the same time, if you are not in Google, possibly in a decent position for your relevant keywords, you almost do not exist in the online world.

Although it came into existence quite late compared to its predecessors Excite, Lycos and Altavista, Google has established itself as the leader of the search engine industry in the early 2000's, emerging out of the magmatic competition of the 90's. It leveraged on a new search algorithm which delivered much more accurate results, the famous PageRank, and a new business model, based on advertising. Google was also "lucky" that other major IT players such as Yahoo and Microsoft did not decide early enough to invest in the search and search advertising markets, since, at first, these markets looked as not-so-profitable, as the good old Yellow Pages.

Google eventually became the dominant player among Internet search engines. And, basically as any other firm which became dominant in a high-tech industry, it came under the spotlight of the antitrust authorities and competition lawyers and economists, in a sort of curse of the giants. Still, we claim that its fate may be different

from its predecessors, in particular Microsoft, because the markets in which Google operates are not two-sided.[1]

This paper aims to be another small light beacon on Googlenomics, trying to understand whether Google is a two-sided market, and, if not, what it is. Then, it tries to provide a tentative assessment of the Google antitrust case through a new market definition. We start in section 2 by reviewing the literature on two-sided markets, which have been the most important analytical tool for the Google platform so far. We aim at showing that this young but burgeoning literature still faces a definitional problem, although it produced economic and policy relevant results. We propose to systematise past contributions and extract a definition which should help establish a clear line between two-sided and non-two-sided markets. Then, in Section 3, we analyse the Google platform and show why it does not fit in the proposed definition of two-sided markets. In section 4 we put forward our own construction of the Google platform as a vertical chain with Constant Unidirectional Network Externalities. Finally, Section 5 analyses the allegations against Google through the market construction that we propose, and Section 6 concludes.

2 Two-sided and Media Markets

"Two-sided market" is a young concept in economic theory. The term was first used in 2002 by Rochet and Tirole (2003). Other authors (Parker and Van Alstyne 2000; Caillaud and Jullien, 2001, 2003; Evans 2003; Armstrong 2006) contributed to develop this concept, albeit using in some cases a different terminology.[2]

A two-sided market is a possible representation of a certain set of economic transactions. Indeed, two-sided markets were not discovered in the early 2000's. At that moment, several scholars developed a model which was fit to describe a set of economic phenomena, whose importance was growing. Of course, two-sided markets had existed well before they were termed so, and economists had already analysed the markets which are now defined

[1] As it will be clearer in the proceedings, this claim could also read "the markets in which Google operates are *sui generis* two-sided".

[2] Throughout this section, we use the term "two-sided markets" also for contributions which used different terms, as now this is the established convention.

as two-sided.[3] Importantly, whenever this paper states that a certain market is not two-sided, it just asserts that the two-sided market model does not (fully) apply to it. Obviously, depending on the definition, the set of economic phenomena which can be termed "two-sided markets" may be larger or smaller. As it will be clear with the proceeding of the paper, we favour a more stringent and precise definition of two-sided markets.

At the origin of this stream of economic literature, scant attention was devoted to defining what a two-sided market is. Economists had it clear that there was a larger and larger set of markets in which the behaviour of firms was at odd with established economic theory. Therefore, scholars tried to show what specificities they perceived in these markets, and then modelled these specificities to predict the behaviour of firms within this framework. Using this new class of models, economists analysed situations which could not be satisfactorily explained before, such as the fact that setting a price equal to 0 or negative was a profit-maximising strategy. In addition to that, relevant policy conclusions, e.g. in terms of competition law or business strategies, could be drawn out of this framework. Indeed, Rochet and Tirole (2006), in their first attempt to sum up the new stream of literature, observed that it "had much of a 'You know a two-sided market when you see it' flavor."

The early contributors to this theorisation identified several specific features of two-sided markets. Parker and Van Alstyne (2000) observed that when firms produce two complementary products sold in different markets, it is reasonable to underprice one of them to maximise profits. This is due to inter-market network externalities, that is positive externalities created in one market and enjoyed by the participants of the other. They also observed that such a firm behaviour can be partly due to the unique properties of information goods, namely that marginal costs are 0 or negligible. Caillaud and Jullien (2001, 2003) analogously remarked that two-sided markets are characterized by indirect network externalities, that is a relationship between the numerosity of participants in one side and the utility enjoyed by the participants in the other. They use the qualifying "indirect" to distinguish these network externalities from those affecting the same market (Katz and Shapiro 1986). These network externalities create the "chicken-egg dilemma": the market player

[3] See Filistrucchi, 2012, for a short account of earlier studies of two-sided markets.

needs both sides of the market on board. Then, they also observed that in these markets price discrimination is commonly practiced: market players apply different prices to the two sides. Armstrong (2006) also focused on cross-side externalities: although in many markets firms compete for two or more groups of customers, in a set of interesting cases the benefit enjoyed by a class of customers depend on the numerosity of the other class. He also allowed for this externality to be negative, as in the case of newspapers, where readers have a negative preference for advertisements. Besides, he introduced the concept of multi-homing, that is the participation of users to multiple platforms. Evans (2003) identified three conditions for two-sided markets organised via platforms to emerge: i) existence of two or more distinct group of customers; ii) existence of positive externalities in force of the connection or coordination of the two groups; iii) the need of an intermediary to internalise the externalities. Rochet and Tirole (2003) also focused on network externalities. They state that many, if not most of, markets with network externalities are two-sided markets. The class of two sided-markets is a sub-class of markets with network externalities, namely those markets in which a platform can effectively (i.e. without side-payments among users) perform cross-subsidization between distinct groups of end users.

To summarise, this early literature upholds that a two-sided market is an economic phenomenon in which two distinct groups of users enters into a transaction through a platform, and that the numerosity of each group creates an externality for the other. All authors, a part from Armstrong, focus mostly on positive externalities. Network externalities have two practical consequences: the "chicken-egg dilemma" and cross-subsidisation.

Rochet and Tirole (2006) acknowledged that if the analysis stopped here, the class of two-sided markets would be overinclusive. Indeed, all markets and firms operate on (at least) two sides, and to some extent, the proper working and the number of participants of one side are beneficial for the other. Therefore, they proposed a much more stringent definition: given a platform charging a per-interaction price p_1 and p_2 to two categories of users[4], the market for this interaction is two-sided if the demand depends on the price structure (that is the values of p_1 and p_2) and not only on the aggregate price

[4] Buyers and Sellers in Rochet's and Tirole's definition.

(that is the sum of p_1 and p_2). As a corollary, transaction costs must prevent the two sides of the market to compensate each other, otherwise side-payments would occur, preventing the firm to affect demand through the price structure.

Still, even this definition tends to overinclusiveness.[5] Rochet and Tirole were aware of this, and discussed whether even any firm could be considered a two-sided market under this definition. They considered this not to be the case, "since at least in competitive environments, firms are often de facto one-sided platforms, in that there is little 'wriggle room' for them to manipulate the price structure". This reasoning does not seem very satisfactory, as it should then be asked, for example, whether firms in less competitive environments are two-sided markets.

Nevertheless, an aspect of this definition has been so far downplayed and would be crucial to draw a clear line among two-sided and other markets. Rochet and Tirole considered firms charging a price per interaction, and the sum of those prices. The point is that actually in most of the two-sided markets they listed there is a **single interaction**, intermediated by the platform,[6] whose price on each side can be summed up.[7] Utility of both parties depends on that single interaction being finalised. An exemplificative list of two-sided market, the interaction at stake, the class of users and their mirror aims is provided in Table 1.

Table 1 – Two-sided markets with single interaction

Platform	Interaction	User A	Aim of Users A	User B	Aim of Users B
Credit Card	Trade of a good	Consumer	Buy the good	Merchant	Have his good sold

[5] Rysman (2009) is also aware of overinclusiveness in two-sided markets. Still, he is more interested in understanding in which markets two-sidedness is important than in a clear demarcation. With this approach, there is the risk to come back to the "you know it when you see it" early tendency.

[6] The uniqueness of transaction does not prevent the existence of other ancillary transaction necessary for the platform to work. E.g. there is a single transaction between the buyer and the seller using a credit card, and a series of ancillary transactions between credit card firms, banks, producers of devices etc.

[7] Prices are not pure numbers. They are expressed in currency per quantity of product. You cannot sum the price of a kg of butter (€/kg) with the price of one cannon (€/piece); or the price for a search (€/query) with the price for advertisement (€/click).

Yellow Page	Finding a Business	Consumer	Find the Business	Business	Be found by consumers
Stock Exchange	Trade stocks	Investor	Buy the stock	Owner if the stock	Have his stock bought
Heterosexual Dating Club	Date	Men	Find a woman to date	Woman	Find a men to date
Operating System	Computer tasks	Consumer	Perform tasks	Application Developer	Have his application used for tasks

The two-sided markets listed above are fully consistent with Rochet and Tirole's definition. Deriving from their definition the uniqueness of transaction dispels all doubt about whether firms, both in competitive and non-competitive environments, are included, as they perform two different transactions: they buy work and inputs on one side, and sell goods/services to the consumers on the other.

A corollary stems from this approach: in two-sided market there are always **reciprocal inter-side positive externalities**.[8] Since both classes of users want the single interaction to be carried out, the higher the numerosity of both sides, the higher the possibility for the interaction to take place. This does not imply that externalities from both sides are equivalent: there may well be the case that one side creates stronger externalities, and, according to the theory, it will be imposed a lower price, or even granted a subsidy.

The corollary of reciprocity of externalities allows clarifying other "grey areas" of two-sidedness. For example, supermarkets have been claimed to be two-sided markets. They fulfil the single interaction criterion, interaction which would consist in the trade of products between producers and consumers. Still, they do not fulfil the reciprocal inter-side positive externality criterion. Consumers enjoy inter-side externalities due to the variety and availability of products (Armstrong 2006). On the contrary, producers do not enjoy inter-side externalities due to the number of consumers, as they get paid on the

[8] Network externalities are positive external consumption benefits: a decision to consume a good or service provides a benefit to other consumers. Network externalities may be intra-side when consumers in one market provide benefit to other consumers in the same market; or inter-side, when consumers in one market provide benefit to consumers in another related market (Katz and Shapiro 1986; Pardolesi and Renda 2002).

basis of the quantities delivered to the supermarket, and not in function of final sales to consumers. If market structures with unilateral inter-side externalities were to be considered two-sided markets, the definition would include all retailers, as the analysis for supermarkets applies to any kind of retail shop. Personal service providers, such as hospitals, hotels, or beauty farms, would also fall in this definition, as consumers receive positive externalities from the amount of operators employed by the firm, but operators enjoy no externalities based on the number of consumers.[9] Inclusions of these large sectors seems to us exorbitant compared to the object of the two-sided market economic literature. Besides, we do not see major failures of the economic theory in explaining behaviours of firms, suppliers and consumers in these markets.[10]

If our definition, based on the uniqueness of the transaction and reciprocal inter-side externalities were adopted, a class of what are currently considered two-sided markets would be excluded: media markets[11], that is newspapers, televisions, internet portals, and any other operator which on one side sells services to consumers, and on the other side sells advertising space to advertisers. In media markets, inter-side positive network externalities run from the number of consumers to advertisers, but, for many medias, they do not run from the number of advertisers to the number of consumers.[12] Furthermore, the two transactions are not the two parts of a single interaction: consumers want content, advertisers want consumers' attention. The common ground between these two interactions is that they take place on the same physical space: the media support (be it paper, a TV channel or a website).

Even in the current two-sided market literatures, media market are to a certain extent outliers, because of no or negative inter-side externalities from advertisers to users. Other scholars have noticed

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[9] The single transaction in these cases could be construed as the delivery of e.g. health services from professionals to patients, with hospitals as platforms.

[10] Hagiu (2007) excludes that retailers are two-sided markets, by distinguishing between the merchant mode and the two-sided platform modem, whereas in the former case merchants acquire the property of the good.

[11] Audience-makers in Evans (2003) taxonomy.

[12] I had very useful discussions on this issue, and acknowledged that some media users enjoy benefits from advertisements (Rosamaria Bitetti kindly suggests that the readers of Vanity Fair do). Nevertheless, I retain my point that there is a class of media whose users do not enjoy benefits from advertisements, and the following analysis applies i*n primis* to them. I will explore in Section 3 how most of Google users do not enjoy benefits from advertisements.

the hiatus between two-sided and media markets. Filistrucchi (2008) noticed that the method to determine the relevant market for media operators needs to be different from that applied to other two-sided markets. He also observed that there is no real interaction between the two-sides of a media market, as we try to argue. He and his colleague (Filistrucchi *et al.*, 2012) further developed this insight by distinguishing between two-sided transaction markets and two-sided non-transaction markets. The latter category includes media markets, whilst the former all other two-sided markets.

We do not want to create a Scholasticism-like problem of universals. Media markets can either be not considered a two-sided market at all, or be considered a special case of two-sided markets distinct from all others, and the outcome of the analysis would roughly be the same. The issue we want to underline is that media markets have clear dissimilarities with other two-sided markets, and that these dissimilarities, as in the case of Filistrucchi's SNIPP test, matter for their economic analysis.

There is another difference among two-sided and media markets which is the consequences of the two criteria described above. **Two-sided markets with a unique transaction and reciprocal inter-side network externalities are to be two-sided.** Some examples can clarify what seems to be only a tautology. There cannot be credit card transactions if either buyers or sellers do not take part in the platform;[13] yellow pages are useless if either readers or businesses are missing; the videogame console market does not exist if there are not both end consumers and game developers. Both parts are logically and structurally necessary. Because of this, a platform necessarily faces the "chicken-and-egg" dilemma, which is an "essential" (Evans 2008a) feature of two-sided market analysis. In media markets, the two sides are not necessary, they represent a business strategy. Television channels are a good example: there are channels whose business model is two-sided, that is based on free content and advertising revenues, alongside of pay-per-view channels which earn revenues from subscription fees. In addition to those, there are public channels which are funded out of coercive

[13] Evans (2012) also notices this, albeit in a footnote. On a similar, but less radical, line, Rysman (2009) distinguishes between two-sided strategies, where platforms have a choice either to go two-sided or not, and structurally-constrained two-sided markets.

taxation. No coercive power could ever fund a credit card platform if either of the two sides were missing.[14] Media platforms do not necessarily face the "chicken-and-egg" dilemma: they need the end users to have advertisers, but not viceversa.[15] This is a key difference with non-media two-sided markets, where, again, platforms need both sides be operational.

All in all, we propose the following definition of two-sided markets. A market operator, called platform, operates in a two-sided market when:

1) a single transaction takes place among two different groups of users connected by the platform;
2) the numerosity of each group of users creates reciprocal inter-side positive externalities;
3) as a consequence,the two sides are logically and structurally necessary to the operation.

Our definition clearly separates two-sided markets from other economic structures for which two or more sides are relevant (such as firms, supermarkets, providers of personal services, media). The latter can be understood and analysed with the old economics toolbox, and the former need the two-sided economics toolbox.

Although media markets cannot be represented as two-sided markets according to this definition, we do not go as further as to claim that they should be treated as normal one-sided market, since the degree of one-way interaction among advertisers and users is an important specificity which needs to be taken into account. Another possible economic representation of media markets will be proposed in Section 4, and, hopefully, it will be useful to interpret Google's market. Again, the focus is not on discovering whether the Google

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[14] Coercive powers could force users to join the platform, but could not funding it if users are not, spontaneously or forcefully, there.

[15] E.g., newspapers are usually considered platforms for which both readers and advertisers are necessary to remain in the market. As a counterexample, this has not been the case for the Italian newspaper "*Il fatto quotidiano*". Launched in 2009, he closed the financial year with €29.6 million of revenues and €5.8 million of profits, whilst revenues from advertising amounted to about €850,000. It means that this newspaper covered his costs without resorting to the advertising side, although the economic literature usually assumes that newspaper makes loss on the readers' side to earn extra-revenues on the advertisers' side. See http://www.italiaoggi.net/news/dettaglio_news.asp?id=201108161129234046&chkAgenzie=ITALIAOGGI&titolo=Il%20Fatto%20fa%20ricchi%20Padellaro%20&%20co (last accessed on March 2012).

platform is a two-sided market or not, but to create a theoretical economic framework which helps a better understanding, especially in terms of antitrust policy. Before doing so, in Section 3 the features of the Google platform are analysed, showing why it does not fit in the definition of two-sided markets proposed above.

3 Google's Market

Most of the economic analyses of the Google platform and many antitrust cases against Google are based on the two-sided market paradigm, although with several caveats (Laudadio Devine 2008; Pavel 2009; Cave and Martin 2011; Etro 2011). Differently, here the Google platform for search and search advertising is claimed not to be a two-sided market *strictu sensu*. In this section, the relations among the different actors on these markets are analysed, trying to show what the main differences between two-sided markets and the Google platform are. Firstly, this section shows that two transactions, and not a single one, take place on the Google platform; then that operating with two classes of users, searchers and advertisers, is a business strategy and not a structural feature of the market; and finally that reciprocal cross-side network externalities between the two classes of users are absent, or at least questionable or negligible.

As our focus is limited to Google operations in the search and search advertising markets,[16] business relations can be described as follows (Varian 2007; Lastowka 2007; Grimmelmann 2007; Evans 2008b; Pavel 2009; Cave and Williams 2011; Etro 2011). There is a platform operator, Google, and two classes of users: searchers and advertisers. Searchers access Google to submit a query and obtain relevant web resources, usually called organic search results. Alongside of organic search results, Google may also provide results from services which are provided by Google itself (such as maps or video), own-product-placement results. Searchers may access Google either directly on its websites, or indirectly, that is through another website or software, such as Google toolbar, search bars on browsers, or mobile applications. To produce search results, Google indexes and crawls

[16] Other services provided by Google help in establishing its brand and a base of Google users. Nevertheless, Google search engine can be accessed without any need to have a Google account for other services, and other services can be accessed independently from the use of Google as a search engine. In some cases, as discussed below, Google search delivers results from its own other services.

the WWW, and applies its search algorithms to the content retrieved.[17] Advertisers buy space for search advertisements on Google. Advertisements may be purchased directly from the Google-owned advertising platform, Adwords, or indirectly via advertising agencies. Advertisers bid for keywords via a second-price sealed bid auctions. Based on the advertisers' bids, the quality score and the reserve price set by Google, paid search results are shown next to or above relevant organic search results. Advertisers pay per each click searchers make on the advertising link (Cost-Per-Click).

According to this flow of relations, on Google's websites two different transactions take place: users want information. namely, information about the location of an information on the WWW; advertisers want users' attention, or eyeballs. The lack of a single transaction is the first key difference from two-sided markets, as defined above. As in media markets, these two transactions take place on the same location, that is Google's websites.

At the very beginning, Google was not operating on the market for advertising: its founders hoped to get enough revenues by licensing Google search technology. (Laudadio Devine 2008). For Google and any search engine, operations on both search and search advertising markets are a winning business strategy, not a structural feature (Grimmelmann 2007). Even though in these days the Google model seems to be the sole strategy available, from a structural point of view it needs not to be the case. In addition to the advertisement-based model, search engines could also get revenues from consumers or websites. In the former case, search engines would operate in a one-sided market; in the latter, since they would need both searchers and websites on board to operate, they would fit in the two-sided market definition.

As stated above, two-sided markets are characterized by reciprocal inter-side network externalities.[18] These externalities create the "chicken-egg" dilemma and a feedback loop between the numerosity of the two sides. In some cases, inter-side network externalities are

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[17] This interaction between Google and websites can hardly be considered an economic transaction as there is not any exchange, only a one-sided retrieval of information. Google can freely crawl websites and retrieve contents in accordance with the machine-readable limits imposed by website owners (the so-called robots). This non-economic interaction is similar e.g. to that between map providers and properties/locations; or between restaurant guides and restaurants.
[18] See footnote 8 above.

reinforced by intra-side network externalities, such as in the cases of operating systems, where consumers enjoy benefits from both the available applications and the users of the system. Google's markets do not show either reciprocal inter-side or intra-side network externalities. The lack of reciprocal inter-side externalities would suffice to exclude Google from the set of two-sided markets according to our definition. The lack of intra-side network externalities is analysed *ad abundantiam*, because they play quite an important role, although maybe misplaced, in the economic literature on search engines.

Advertisers enjoy inter-side positive network externalities from the number of searchers, because this increases the audience for their advertisements. They also appreciate that searchers are profiled with the highest possible level of precision, as Google does. Nevertheless, stating that searchers enjoy benefits from the number of advertisers is much more questionable. If this were not the case, the reciprocity of inter-side network externalities would be missing. Let us dwell upon this issue.

Google searchers look for information, and together with this information they are shown advertisements. We claim that in most cases these advertisements do not deliver additional benefits to the users, as they are not consistent with the aim of the search. Broder (2002) proposes the following taxonomies of search queries:

1. Navigational queries, if the searcher wants to know the location of a certain resource on the Internet. E.g., the query "wikipedia Italian" may be typed into Google to know the exact URL of the Italian edition of Wikipedia;
2. Informational queries, if the searcher wants to access information on a certain issue. E.g., the query "net neutrality" may be typed into Google to retrieve a list of websites which provide information on this topic;
3. Transactional query, if the searcher wants to access a website to perform a transaction. E.g., the query "flight Rome-Brussels" may be typed into Google to find a website selling that flight.

It may be quite safely assumed that when searchers type a transactional query, they enjoy positive externalities from the search advertisements. Nevertheless, these queries are estimated to represent about 10% of all search queries (Jansen *et al.* 2008). In addition to that, these advertisements cause positive externalities

only to the extent to which the information is not delivered via the organic search results too.[19] Anecdotally, if the search "flight Rome-Brussels" is performed on Google.com, the first and the third paid advertisements correspond to the first and the second organic results.[20]

More questionable is whether searchers typing informational or navigational queries, which represent 90% of all queries,[21] enjoy any kind of positive externalities from advertisements, or if they are indifferent, or if advertisement creates negative externalities. At best, this is a set of empirical propositions whose truth needs to be tested (Manne and Wright 2011). Some scholars (Evans 2008b; Pavel 2009) consider that there is a self-reinforcing loop between the number of searchers and advertisers, and therefore conclude that the Google platform is best described as a two-sided market. We rather argue that there are solid theoretical arguments to believe that, for most of the queries performed on Google, inter-side positive network externalities from advertisers to users are absent or at best negligible.[22] Therefore, the Google platform cannot be considered as a two-sided market according to the definition provided in Section 2.

The lack of intra-side network externalities among the advertisers on the Google platform seems not to be an open question. The higher the number of advertisers, the more intense the competition for advertising space, therefore prices are higher and the salience of an advertisement is lower (Manne and Wright, 2011). It may be stated that the higher the number of advertisers, the more accurate the match between advertisements and research queries. But this result can be achieved also by advertisers bidding only for more accurate keywords.

Google searchers do not enjoy positive intra-side externalities due to the numerosity of their class. True, a large number of search users, and therefore of search queries, improves the quality of the search

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[19] "[S]earch advertising is a partial substitute for search rankings." (Grimmelmann, 2007).

[20] Search performed on google.com from an IP located in Brussels on the 27th of March 2012.

[21] 80% of queries are estimated to be informational, and 10% navigational (Jansen *et al*. 2008).

[22] On a similar line, see Argenton and Prüfer (2012) who also review several other contributions on this issue.

mechanism. But this is not a network externality. As Katz and Shapiro (1986: 824) clearly put it (emphasis original):

> *Network Externalities have two fundamental effects [...]. First, the relative attractiveness today of rival technologies is influenced by their sale history. In effect, they are "demand-side economies of scale" [...]. Second, and perhaps more important, in the presence of network externalities, a consumer in the market today also cares about the* future *success of the competing product. [...] Network externalities share the first type of increasing return to scale with learning by doing. The second source of demand-scale economies is, however, peculiar to industries with network externalities.*

In the same way, Economides (1986, 2004) describes the network externalities effect as the fact that a good is more valuable when the *expected* sales are higher. From the literature, it seems clear that when there is no correlation between consumer utility and *future* numerosity of users, we should not talk of network externalities, but only of other kinds of demand-side economies of scale, such as learning economies.

As said, scholars and competitors claim that Google deliver better search results because it handles many more search queries and many more tail search queries (Grimmelmann 2007; Evans 2008b; Pavel 2009; Cave and Williams 2011). Therefore, Google is able to better and more speedily adjust its search results to what users really search, and to better perform other tasks such as spelling corrections. Nevertheless, *today* quality of search depends on the number of *past* queries and users; therefore this phenomenon cannot be considered a network externality. Indeed, the same happen in the aircraft industry, which is the classic illustraion for learning economies: Boeing and Airbus make better aircrafts at lower costs because have made more aircrafts in the past. Economists would never say, and have never said so far, that aircraft buyers enjoy network externalities; analogously, economist should not say that Google searchers do (Manne and Wright, 2011).

In analysing the relationship between number of queries and quality of search, Argenton and Prüfer (2012) and Etro (2011) use the term (indirect, inter-temporal) network externalities, although they acknowledge the difference with "classical" network externalities and rather stress the similarities with learning economies. Laudadio Devine (2008) bases the feedback loop on the consideration that additional advertisers deliver benefits to searchers because they

provide additional funds for Google to market better search or more products. Still, according to such a wide definition, network effects and feedback loops could be found in any market in which firms re-invest their revenues, and this is not the case in the economic literature.

To summarise, this section has shown how Google differs from a two-sided market. In particular, three differences are relevant for the present analysis:

1. two transactions with two distinct objects take place on Google platform;
2. there are no reciprocal inter-side network externalities, because the number of advertisers does not create a positive externality to searchers, at least for a large set of queries;
3. the two sides of the market are not a logical necessity or a structural feature.

We do not want to engage in a definitional war. We could claim both that Google platform is a two-sided market *sui generis* and that its peculiarity is relevant for antitrust analysis, or that Google platform is not a two-sided market and therefore should not be treated as such by antitrust authorities. Only the perspective, but not the conclusions, of this paper would slightly change. Nevertheless, in the next section we propose a construction of the Google platform as a one-sided value chain with Constant Unidirectional Network Externalities, in short a CUNE-vertical chain.

4 A Construction of Google as a One-Sided Market

After having proposed a definition of two-sided markets in Section 2 and analysed in Section 3why the Google platform does not fit in it , the paper now aims at sketching a possible construction of the Google platform as a vertical chain. The vertical chain would be composed of two one-sided markets with Constant Unidirectional Network Externalities (CUNE). Again, the issue is not whether the Google platform is a vertical chain or not, but whether such an economic model allows to analyse it, in particular with respect to the antitrust case.

In this model, the Google platform is a particular kind of retailer, buying eyeballs, that is user attention, from searchers, profiling them

– at the moment much more accurately than most of other media – and selling them to advertisers. Google acquires well-profiled eyeballs both by paying money and by providing an in-kind payment, that is search results,[23] to other intermediaries and end users. Advertisers pay money to Google to acquire well-profiled eyeballs.

To begin with the analysis of the upstream market, we are not the first to suggest that search results are actually a price paid by Google to end users. Etro (2011) recognises that platforms typically attract consumers by "providing free services that deliver utility for consumers and can be seen as a price paid to them". As wages are the medium for households to buy goods and services, from which they derive utility, in the offline world, in the online world search results are necessary to access resources from households derive utility. Whilst in the offline world households supply their working force to firms in exchange for wages, in the online world households supply their eyeballs, alongside with a certain amount of information which allows Google to perform profiling, in exchange for search results.

This construction may not be totally convincing at first sight, as we are used to think of search services as products demanded by consumers for a 0 price. Nevertheless, Google's behaviour in the market for eyeballs comes closer to that of a retailer if we consider that it actually pays other websites, and even consumers[24], for a large chunk of its traffic, as any other firm pays for its supplies in the upstream market. Google acquires search traffic via agreements with other websites, software producers or Original Equipment Manufacturers (OEMs) (Evans 2008b; Pavel 2009; Etro 2011). Minor (or former) search engines, such as AOL or ask.com, deliver their users' eyeballs to Google, which in turn sells them to the advertisers. Large websites sell to search engines the opportunity to include a search box in their webpages, and Google has agreements with a

[23] Again, we leave outside all the other services provided by Google. Their inclusion in the analysis would not change the outcome, as they are not bundled or tied to Google search: users may decide to use Google only as a search engine, and not for its other services.

[24] Since March, 1st 2012, under the new programme "Screenwise", Google pays up to 25$ per year to end users which allow sending more detailed information about their behaviour on the Internet, i.e. which allows to be better profiled. See http://www.google.com/landing/screenwisepanel/ (last accessed on 29 March 2012).

several large websites. In addition to that, OEMs and browsers receive substantial revenues from search engines for installing dedicated search toolbars. Google, as its main competitor Bing, is willing to incur in substantial Traffic Acquisition Costs (TACs) to acquire this traffic. TACs usually consist of a share of revenues from advertisements created by the queries acquired plus fixed fees. For example, in 2011 Google entered in an agreement with Mozilla to be the default search engine in its Firefox browser search box for $300 million.[25] For the last financial quarter of 2011, Google TACs totalled $2.45 million, or 24% of total advertising revenues.[26] According to its main competitor, Microsoft, Google receives at least 624 million search queries from its partners.[27]

To summarise, the Google platform operates in the upper part of the value chain by acquiring eyeballs. A part of the eyeball supply is acquired directly from end users and it is paid in kind, by providing search services. Another part of the eyeball supply is acquired from "wholesalers", that are large websites, other search engines, software producers, especially browsers, and OEMs, and it is paid cash, as any other input.

On the downstream market, advertisers can be constructed as buyers of eyeballs, or, more precisely, of certain kinds of profiled eyeballs. Advertisers do not have a point of satiation for eyeballs: given a certain budget, they aim at accessing as many eyeballs as possible.[28] To put it bluntly, even accounting for diminishing marginal utility of eyeballs, advertisers will always prefer 1,000,000 eyeballs to 1,000 for the same budget.[29]

Advertisers want as many eyeballs as possible because they do not actually buy eyeballs, but clicks. Once the Cost per Click (CPC) is

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[25] http://www.portfolio.com/views/blogs/daily-brief/2011/12/22/google-to-remain-default-browser-in-mozilla-for-300-milllion-dollars-per-year (last accessed on 29 March 2012).

[26] http://investor.google.com/earnings/2011/Q4_google_earnings.html (last accessed on the 30th of March 2012)

[27] http://www.cresse.info/uploadfiles/2011_JEAN-YVES%20ART.pdf (last accessed on 30th of Mach 2012)

[28] Possibly over a minimum threshold, or with a rebate from the media operator if the audience is smaller than a guaranteed minimum

[29] Of course, to buy advertising space on media platforms with a certain audience advertisers need a minimum budget. The larger the expected audience, the higher the budget. But in this Section we keep on focusing only on the Google platform and not on media markets in general. The argument would apply also to any other media, *mutatis mutandis*.

fixed via the auction mechanism, advertisers would buy as many clicks as possible, within their budget, as long as their expected profit per click is higher than the price (and 0 clicks afterwards) (Evans 2008). This is the reason why advertisers enjoy Constant Unidirectional Network Externalities based on the numerosity of the audience: the higher the audience, the better.

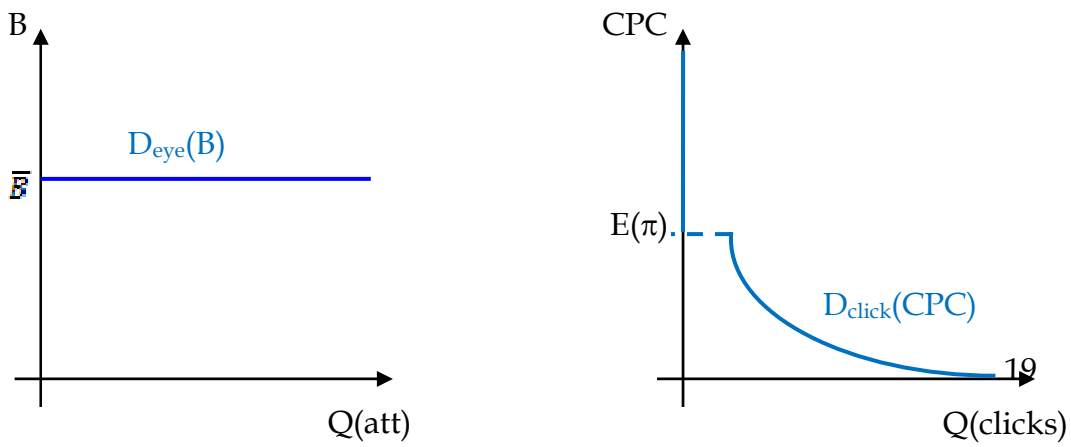
With the old economic toolbox, the advertisers' demand function for eyeballs (D_{eye}) can be constructed as an infinitely elastic demand curve. Infinite elasticity of the demand for eyeballs is given by the fact that the demand of click "saturates" the budget (B) as long as the expected profit per click is higher than the CPC. The demand function for clicks in function of the CPC (D_{click}) is sloped downward for prices lower than the expected profits ($E\pi$), and 0 elsewhere.

In formulas and figures:

$$D_{eye}(B) = \bar{B}$$

$$\begin{cases} D_{click}(CPC) = \dfrac{\bar{B}}{CPC} & E(\pi) \geq CPC \\ D_{click}(CPC) = 0 & E(\pi) < CPC \end{cases}$$

Figure 1 – Demand curves in Google platform downstream market



After the *pars destruens*, in which we have shown why Google needs not to be constructed as a two-sided market, this section provided the *pars construens* of this paper: a construction of the Google platform as a CUNE-vertical chain. The next section will be devoted to the analysis of the allegations against Google based on this model of the platform.

5 Competition Analysis of Google's Vertical Chain

This section provides a sketch of how the allegations against Google can be analysed through the CUNE-vertical chain model. A more thorough analysis of the Google case from the point of view of EU competition will be the object of a future research, but here we want to make clear if and how the alleged abuses of dominant position can be constructed on this basis.

Definition of the Relevant Market

In our construction, Google operates in the relevant market for well-profiled eyeballs. It means that we no longer propose to classify the market for advertisements based upon the media-type, that is offline or online media, or the online advertising delivery model, that is display, search and classified ads. On the contrary, what is relevant to draw the boundaries between the markets is the degree of user profiling.

So far, economic literature and the case law have mostly considered the market for online advertisements as distinguished from the market for offline advertisements (Ferdinand 2009; Ratliff and Rubinfeld 2010; Etro 2011; Van Loon 2012).[30] In our interpretation, this amounts to say that the level of profiling in online advertising is

[30] See the European Commission Decision of 19/02/2010 Case No COMP/M.5727 - Microsoft/ Yahoo! Search Business, §§71-75; and Decision of 11/03/2008 Case No COMP/M.4731 – Google/ DoubleClick, §§45-48

so much higher that online and offline eyeballs are not substitutable from the point of view of advertisers.[31]

The open question is whether the level of profiling is also different enough between search advertisements on the one hand and other kinds of online advertisements on the other. So far the European Commission could escape taking any stance on this issue.[32] On the contrary the French Competition Authority identified a separate relevant market for search advertising in an opinion on the Google operations.[33]

In our construction, we should investigate whether search-profiled-eyeballs are different from profiled-eyeballs sold by websites other than search engines. Here lies the main difference with the two-sided market analysis: relevant markets is not limited to search engine operators.

There are other classes of retailers of well-profiled eyeballs which should be included in this relevant market. Although the investigation on which providers are substitutable needs an empirical analysis, two classes can already be identified on the basis of a theoretical argumentation: social networks and email providers. They both possess a large set of information about the users and process them to deliver targeted ads in the same webpage where they deliver their services. Other websites which require registration, keep track of user behaviour and deliver ads on the basis of this information could also be part of the relevant market. In addition to those, it should also be considered that the level of profiling in display advertising is becoming higher, and therefore the profiling gap is becoming closer, possibly leading this form of advertisement to be included in this market.[34]

From the CUNE model it emerges clearly why Google is competing e.g. with Facebook, something which was already suggested by some authors (Laudadio Devine 2008; Alexandrov *et al.* 2011; Renda 2011).

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[31] See Cave and Williams 2011.
[32] Cf. note 30 above.
[33] Autorité de la Concurrence, Opinion No 10-A-29 of 14 December 2010 on the competitive operation of online advertising
[34] As argued by the European Commission in the Google/DoubleClick Decision, §§11.-13

Advertisers want well-profiled eyeballs and are likely to consider both Google's and Facebook's eyeballs as such. From the point of view of the supply substitution, it is worth noting that Google entered the social network market with Google+, and that Microsoft's Bing entered into an agreement to supply search services on Facebook.

Rather than only on search queries or search-based advertisements, the dominance of Google has to be assessed in relation to this additional class of competitors, and market shares are going to be lower. Based on Commission decisions, the definition of the relevant markets will be likely done along national or linguistic borders. In addition to that, detailed information on the share of revenues originated by firm by high-profile advertising will need to be retrieved from firms and is not publicly available. Whether Google will be dominant in this market is still an open question: many other players will be included, but Google will likely dwarf their advertising revenues. Only as a matter of comparison, in 2011 Google advertising revenues amount to $36.5 billion, whilst Facebook advertising revenues to $3.2 bllion.[35]

It is worth noting that one of the sides of the two-sided market, that is the market for search, can no longer be construed as a market in which Google sells its services, as it becomes the input market in which end users and large intermediaries sell their eyeballs to Google. As we will see below, this does not imply that Google's conduct on this market is not relevant from a completion law perspective, but the analysis becomes radically different.

Exclusive Agreements for Traffic Acquisitions

In the US, Google has been accused[36] to have "entered into exclusive syndication agreements with certain high-traffic online publishers, foreclosing access by competitors" (Manne and Wright, 2011). In our model, these are not exclusive distribution agreements for search services, but exclusive purchasing agreements for users' eyeballs, large websites, software producers and OEMs being the suppliers and Google the retailer.

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[35] Google financial statement for 2011; Facebook Prospectus for the Initial Public Offering.

[36] TradeComet.Com LLC v. Google, Inc., 693 F. Supp. 2d 370 (S.D.N.Y. 2009) (No. 09Civ.1400(SHS))

At first glance several specific abuses could be at least in theory imputed to Google:

1. Raising rivals' costs, by preventing them to achieve the efficient scale.
2. Exclusive dealing in force of the exclusivity clause (and here the duration of the contract and the analysis of the barriers to entry in the supply market would be crucial);
3. Predatory pricing or, conversely, predatory bidding, if Google offered such a high price to acquire traffic that other as-efficient competitors could not replicate its bid.

These agreements allegedly have a foreclosing effect, and possibly also foreclosing intent, because they deprive competitors from accessing inputs and reaching an efficient scale (Evans 2008b; Pavel 2009). Although the concept of dominant position may be applied also to the buyer's – other than the supplier's – position, the case law in this field is quite limited. The relevant U.S. Supreme Court case is Weyerhaeuser,[37] whilst, to our knowledge, the Court of Justice of the European Union never dealt with a buyer's dominance case.

In the Weyerhauser case, the Supreme Court stressed the similarities between predatory pricing and bidding, although acknowledging that the latter present lower risks for end-consumers. Therefore, the predatory pricing test needs to be applied. The test has two prongs: in the first prong, the plaintiff needs to prove that predatory bidding raised costs so much that the firm is operating at a loss. In the second prongs, the plaintiff needs to prove that there is a dangerous probability of recouping.

Commentators raised two main issues concerning this judgment. First of all, unlike predatory pricing, predatory bidding presents a lower risk of chilling price competition, and therefore the test should be not as strict. Secondly, prohibition of predatory bidding allegedly protects competitors and suppliers rather than consumers, which may not be hurt by the conduct. This would be especially true if the dominant buyer did not enjoy downstream market power (Rosch 2007; Kirkwood 2005; Salop 2005; Noll 2005; Zerbe 2005; Levin 2007; Werden 2007).

[37] Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co. - 05-381 (2007),

Although there are no precedents, we claim that predatory bidding would be sanctioned under EU Competition Law. First of all, EU Competition law is more severe against predatory pricing, whereas there is no need to prove the probability (let alone a dangerous probability) of recouping when the price is lower than the average variable costs. Secondly, protection of the competitive process as a whole, and thereby of competitors, is less of a hectic debate on this side of Atlantic.

Nevertheless, if the market is constructed as a CUNE-vertical chain, it may be simpler to resort to the category of vertical agreements of exclusive distributions than to involve an analysis of a firm dominant on the buyer side.[38] Since under the EU law, after the recent reform, both supplier's and buyer's market power has become relevant, as long as Google's share in the market for well-profiled eyeballs is higher than 30%, and there are strong indication that this is the case, these agreements would not be covered by the block exemption[39] provided by Regulation EU No. 330/2010.[40] Importantly, it would be no longer relevant to demonstrate that Google holds a dominant position. Google would be barred from entering into these agreements if their anti-competitive effect were proved by the European Commission, and if the defendant could not justify them in terms of efficiency under the four cumulative conditions set out in art. 101.3 TFEU.

Manipulation of Search Results

Google has been allegedly manipulating its search results (Manne and Wright 2011; Cave and Williams 2011; Balto 2011; Van Loon 2012) with two aims: promoting its own-produced content; and demoting its competitors' content, especially in the case of vertical search engines.

This seems to us the most difficult allegation to be framed as an antitrust violation. First of all, it is difficult to distinguish biased search from unbiased (or low-quality) results. Secondly, Google has

[38] "In an exclusive distribution agreement, the supplier agrees to sell its products to only one distributor for resale" (EC 2010).
[39] The application of the block exemption would also be prevented by the inclusion of any of the so-called hardcore restrictions (EC 2010).
[40] Commission Regulation (EU) No 330/2010 of 20 April 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and concerted practices. OJ L 102, 23.4.2010, p. 1–7

its own good reasons to modify its search algorithms to prevent frauds, and it would be very difficult to distinguish "good" from "bad" manipulation (Grimmelmann 2007; Balto 2012).

Most importantly, the key issue is whether inclusion of certain websites in the search results creates an economic or legal relation between the search engine and the website, or not. We are inclined to consider it not to be the case, and to stress the content (informational) aspect of this relation (Urso 2011). The content-informational aspect is so prevalent that in the US the doctrine of free speech has even been invoked to defend the freedom to provide subjective search results (Grimmelmann 2007). To draw an analogy, in other media markets, Competition Authorities cannot probe TV channels for the content provided to viewers, as much as it would be very difficult for a restaurant owner to claim antitrust violations in case he feels defrauded by the non-inclusion or the bad review published in a guide. Possibly, these allegations could fall under the prohibition of unfair competition rather than under antitrust law.

The controversy of applying competition law to search results appears clearly from a recent French judgment.[41] Google was accused of abusing its dominant position in the search market by leveraging into the online map service market, where it offered Google Maps at a 0 price, therefore eradicating competitors via predatory prices. The Court confirmed the accusation and imposed a fine of €500,000 on Google. The judgment is at best controversial, especially in the definition of the relevant markets. In particular, the judgment only defines linked markets, "*marches connexes*", never clarifying what is the rather convoluted relationship between the market in which Google is dominant and the market in which the alleged abuse takes place. It does not refer to two-sided market analysis, nor to any other economic model (Pardolesi and Urso 2012; Fleischer and Smith 2012).

There is no need to resort to the two-sided market toolbox to support the legitimacy of Google's conduct. The CUNE model excludes the relevance of the content of search results for competition law. Search results are not anymore the object traded in a relevant market, but constitute the in-kind payment for end users in exchange for

[41] Tribunal de Commerce De Paris - 15ème Chambe (31/1/2012). Société Bottin Cartographes c. Société Google France e Société Google, Inc.

eyeballs. If searchers could trade their eyeballs with another search engine which delivered a higher utility (i.e. a higher and non-biased search quality), they would have every incentive to do so, as much as workers can leave a firm if it offers lower wages than its competitors. Conversely, Google has strong incentives not to dilute the quality of its search results (at least to a certain extent), because this would reduce the number of searches, and therefore the advertising space that it can sell (Balto 2012). Consistently with our analysis, it has to be stressed that Google is not Microsoft: it cannot rely on network externalities, both intra- and inter-side, to lock in consumers, and this ensures a better alignment of Google's and consumers incentives. Finally, we tend to consider search results as experience rather than credence goods (unlike Pavel 2009), since searchers can check whether the links provided take to the information/transaction they were looking for. Therefore, searchers can assess the quality of search results when deciding in which search engine they input their next query.

That said, we are aware that search engines are nowadays the gateway to the Internet. Websites "do not exist" if they are not indexed by search engines. We are also aware that Google in this moment holds the key of this gateway, and that no competitor seems to threaten its position in the medium term. Therefore, there may be more than solid ground to require some form of "search neutrality" and the prohibition to steer search engines to promote or demote certain content for illegitimate reasons. In addition to strong economic considerations, other values such as plurality in the Internet are at stake here. Nevertheless, we would suggest that these practices call for sectoral regulation rather than antitrust law. The FTC actually went in this direction, by stating that providing misleading search results is a misleading business practice rather than an antitrust violation (Grimmelmann 2007). We are also aware that the technical limitations may render such a regulation impracticable.

Allegations in the downstream market

Google has been accused to i) restrict data portability for advertisers between different advertising platform; ii) lower the quality score / increase the reserve price for competitors, therefore increasing their CPC (Manne and Wright 2011; Cave and Williams 2011; Balto 2011; Van Loon 2012).

In our construction, the analysis of these allegations depends on whether Google is found to have a dominant position in the market for well-profiled eyeballs. Assuming that this is the case, restrictions of data portability is a restriction to interoperability. If strong enough, these restrictions could lead to integrate an exclusivity clause, and therefore exclusive dealing. At first glance, we feel that authorities will have a long way to go to demonstrate unlawfulness, and that these restrictions need to be very severe to integrate an abusive behaviour, but we refer to further research on this issue as soon as the allegations become public.

As for manipulation of quality score/reserve price for advertising competitors, this fact can be constructed as a discrimination: Google would be applying different prices for its search advertisements depending on whether a customer is a competitor or not. The difficulty here would be to prove the abuse, since discrimination, as other exploitative abuses, often falls in a grey area between legitimate subjective decisions on the price, which is the key variable from which competition authorities usually voluntarily abstain, and anticompetitive behaviours (Frignani and Pardolesi 2006; Osti 2007). The task of Competition Authorities in proving the abuse would be much easier if Google refused access to its advertising platform to its competitors, or asked for a price so high which could amount to a refusal. Nevertheless, this seems not to be the case. Again, we refer to further research on this issue as soon as the allegations become public.

Degradations of Access to Owned Content

In its complaint, Microsoft accused Google to degrade Bing's access to YouTube.[42] Although the technicalities of the allegations are not yet known, a quick check of YouTube's Robots.txt file shows that the Google search engine has a larger access to YouTube's resources.[43]

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[42] http://www.telegraph.co.uk/technology/news/8423490/Why-Microsoft-filed-a-formal-complaint-about-Google-and-the-search-giants-reponse.html (last accessed on 30th March 2012)

[43] Robots.txt files are machine-readable files which make known to search engine crawlers which parts of the website are indexable and which are not. All websites use robots.txt instruction, and it is free to decide which part of the website can be indexed by which search engine. Cf. www.youtube.com/robots.txt (last accessed on 30th March 2012).

This is the only allegation which is independent on whether the Google platform is considered a two-sided market or a CUNE-vertical chain, as it is factually perpetrated by another entity, YouTube, a video website owned by Google since 2006. It is impossible to know whether this degradation amounts to a full refusal to deal, i.e. is severe enough to prevent Bing to *de facto* index YouTube's content. If this were not the case, this practice would still amount to raising rival's costs. It could be the case that YouTube is considered as an essential facility, given that it is one of the most visited websites (Tarantino 2011). Differently from the other conducts, it is difficult to see in this case any legitimate business justification for such behaviour: by degrading indexation, YouTube, and therefore Google which owns it, is intentionally losing traffic without any direct benefit.

6 Conclusions

We hope that the reader could retain few issues from this paper. First, we have shown that the economic literature on two-sided market has not yet drawn clear boundaries between what is a two-sided market and what is not. The current definition tends to over-inclusiveness. Here, we propose a new definition on what is a two-sided market, relying on: i) the necessity of the two-sides; ii) the uniqueness of the transaction among two distinct groups of users; iii) the reciprocal flow of inter-side positive network externalities. This definition leaves out media markets, which, as other scholars had already realised, are a *sui generis* (non-transaction) two-sided markets. We do not want to make a definitional fuss, therefore media market can be either considered as two-sided markets with their own peculiarities, or non-two-sided markets, and the outcome of the analysis is still the same.

Then, we have analysed how the Google platform does not have the features of a canonical two-sided market. Either it is a *sui generis* (non-transaction) two-sided market, such as media markets, or it is not a two-sided market at all. Under the definition proposed, the Google platform is not a two-sided market because: i) the second sides, that is search advertising, is not necessary for a search engine to operate; ii) two transactions take place on the Google platform, that is searchers demanding search results and advertisers

demanding searchers' attention; iii) externalities flow only from the numerosity of searchers to advertisers, and not the other way round.

That said, we realise that the Google platform has its own peculiarities, in particular the Constant Unidirectional Network Externalities which run from the numerosity of the searchers to advertisers. Therefore, we propose a construction of the markets in which the Google platform operates which takes into account this specificity without resorting to the two-sided market toolbox. We propose Google to be considered a CUNE-value chain, in which Google busy searchers' attention, or eyeballs, from end users and other IT industry players, profile it and sell it to advertisers. Search results in this context are the in-kind payment which Google provides to its eyeball suppliers (together with monetary payments for large players). Constant Unidirectional Network Externalities can be modelled as the advertisers having an infinitely elastic demand for eyeballs, which is actually what happens in the advertising industry.

We used this model to analyse the allegations against Google. To a certain extent, considering the Google platform as a CUNE-value chain rather than a two-sided market has deep implications on the antitrust analysis. First of all, the dominance of Google in the market for well-profiled eyeballs should be assessed against other competitors, such as social networks. Indeed, social networks do what Google does: get users' attention and information and monetise it via advertisements. If we keep our focus on the markets for search and search advertisement, which are the two sides of the Google platform, we could miss this competitive relationship.

Then, most of the competition allegations can be constructed differently than in a two-sided market. The section devoted to the antitrust analysis is only sketch, as more in-depth and target research would be needed, ideally if and when the European Commission issues its Statement of Objections. Nevertheless, it is already possible to see at least in one case (traffic acquisition agreements), that Competition Authorities need not to demonstrate Google's dominance to prevent certain behaviour, and in another case (search manipulation), it appears more clearly why certain conducts would need specific regulation and not only antitrust enforcement.

This paper was born out of the feeling that the literature on two-sided markets was not the perfect tool to analyse the Google case. Therefore, we tried to leave the old road to see the Google case from another perspective. Without claiming for the exhaustiveness or absoluteness of this perspective, we hope that it can help to better understand the peculiarities of the Google platform and to push a bit forward the daunting task that Competition Authorities across the world are and will be facing in disentangling this dilemma.

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